McCarty, R.D. and Weber, L.A.
Thermophysical properties of parahydrogen from the freezing liquid line to 5000 R for pressures up to 10,000 psia
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ABSTRACT
Tables of thermophysical properties of parahydrogen are presented for temperatures from the melting line to 5000 R for pressures from 1 to 10,000 psia. The tables include entropy, enthalpy, internal energy, density, volume, speed of sound, specific heat, thermal conductivity, viscosity, thermal diffusivity, Prandtl number and the dielectric constant for 65 isobars. Also included in the isobaric tables are quantities of special utility in heat transfer and thermodynamic calculations: $(\partial P/\partial V)_T$, $(\partial P/\partial T)v$, $V(\partial H/\partial V)_P$, $V(\partial P/\partial U)_V$, $-V(\partial P/\partial V)_T$, $1/V\ (\partial V/\partial T)_P$.

In addition to the isobaric tables, tables for the saturated vapor and liquid are given which include all of the above properties, plus the saturation surface tension. Tables for the P-T of the freezing liquid, index of refraction and the derived Joule-Thomson inversion curve are also presented.

Key words: Density; dielectric constant; enthalpy; entropy; equation of state; fixed points; heat transfer coefficients; hydrogen; index of refraction; Joule-Thomson coefficient; latent heat; melting point; Prandtl number; specific heat; speed of sound; surface tension; thermal conductivity; thermal diffusivity; vapor pressure; viscosity; volume.